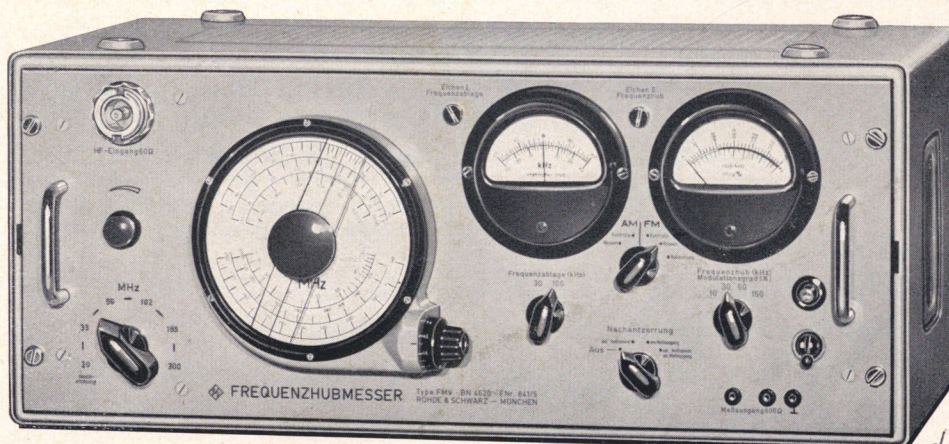


FREQUENCY DEVIATION METER



12/64
Laub Eng
Box 8
Northfield
2nd
679-472

\$1,995
1962
price

Specifications

► Order Number BN 4620

Frequency range	20 to 300 mc; up to 600 mc in operation with harmonics
in 5 sub-ranges	20 to 33/59/102/185/300 mc
Accuracy	± 1%
Ranges for relative centre frequency error	— 30 to + 30 kc / — 100 to + 100 kc
Accuracy	± 2 %, after recalibration
Frequency deviation (swing) ranges	0 to 10/30/60/150 kc
Accuracy	± 4 % of f.s.d., after recalibration
Accuracy of built-in frequency deviation standard	± 1%
Percentage modulation ranges	0 to 10/30 %
Accuracy	± 10 %
Frequency range of modulation	30 cps to 15 kc; up to 60 kc with a decrease in accuracy of frequency deviation indication to ± 10%
De-emphasis	50 µsec, can be cut in for indication, test output, or indication + test output
Input	R&S connector Dezifix B
Input impedance	approx. 60 Ω
Input voltage requirement	
for frequency deviation measurements	10 to 50 mv
for percentage modulation measurements	20 to 100 mv
	In the frequency range 300 to 600 mc (operation with harmonics) an input voltage about ten times as great is necessary.
Test output for the demodulated signal	telephone jack, can be switched to FM or AM
For FM demodulation	
Output voltage for full-scale deflection	approx. +6 db
Output impedance	
between 30 cps and 3 kc	less than 30 Ω
between 3 kc and 15 kc	less than 150 Ω

FREQUENCY DEVIATION METER FMV

Frequency response of output voltage	
in the range 30 cps to 15 kc	flat within 5 % when operating into more than 600 Ω
in the range 15 to 60 kc	+5 % to -30 % when operating into 600 Ω
Inherent distortion when operating into more than 600 Ω at modulation frequencies below 15 kc	
without de-emphasis	less than 0.5 % at a frequency deviation of 75 kc less than 1 % at a frequency deviation of 150 kc
with de-emphasis	less than 0.3 % at a frequency deviation of 75 kc less than 0.5 % at a frequency deviation of 150 kc
Inherent spurious frequency deviation	less than 15 cps corresponding to 74 db referred to 75-kc frequency deviation in the frequency range below 225 mc less than 25 cps corresponding to 70 db referred to 75-kc frequency deviation in the frequency range above 225 mc
For AM demodulation	
Output voltage for full-scale deflection	approx. +6 db
Inherent spurious amplitude modulation	less than 0.05 %
Incidental amplitude modulation	less than 1 % at a frequency deviation of 75 kc
Power supply	115/125/220/235 v $\pm$ 10 %, 47 to 63 cps (75 va)
Dimensions	540 x 234 x 378 mm (R&S Standard Cabinet 56)
Weight	27 kg

Uses

The Frequency Deviation Meter Type FMV is a test demodulator for monitoring frequency-modulated transmitters. It can be used for measurements in development work and production, as well as for programme monitoring. The frequency range covers the entire VHF range.

The instrument can be used to measure:

- (1) Static modulation characteristics by determining the relative centre frequency error.
- (2) Carrier drift due to modulation, supply voltage fluctuations, etc.
- (3) Frequency deviation (swing) (0 to 150 kc) at modulation frequencies between 30 and 15,000 cps (or 60 kc).
- (4) Frequency response and checking of the correct characteristic of the pre-emphasis.
- (5) Amplitude modulation up to 30 % and incidental amplitude modulation of FM transmitters.

With additional equipment:

- (6) Non-linear distortion of modulation (with Distortion Meter Type FTZ BN 4816).
- (7) Unweighted and weighted noise voltages of a transmitter (with Noise and Level Meters Type UPGR BN 12038 and Type UPGF BN 12036 or Millivoltmeter Type UVN BN 12001).

Description

After passing through a high-pass filter, the frequency-modulated radio frequency is heterodyned with the oscillator voltage in the mixer, to obtain the intermediate frequency. The i-f signal is amplified in a two-stage amplifier of sufficient bandwidth and is passed on to the double limiter stage. The discriminator following it converts the frequency modulation into amplitude modulation and provides for its rectification. The rectified r-f voltage thus developed serves to indicate the relative centre frequency error. The frequency deviation is indicated by the audio frequency signal after this is passed to an amplifier through the de-emphasis network, cut in at will. A separate demodulator has been inserted ahead of the limiter for measurement of the AM modulation percentage. The instrument contains a frequency deviation standard for calibration of the deviation indication. The audio frequency at the output of the transformer-coupled amplifier has flat frequency response, very low inherent distortion and noise voltage, and is of sufficient level for further measurements. The electronically regulated power supply ensures dependable and stable operation of the entire measuring instrument.

The Frequency Deviation Meter Type FMV is supplied as a cabinet model in a rugged steel case with carrying handles and a front cover (Order No. BN 4620). The chassis can be removed from the cabinet and readily mounted in a rack (520) German Standard DIN 41491. Should the instrument be desired as a rack-mounting unit, i.e. without cabinet, please quote Order No. BN 4620 D

Valve complement: 1 x EC 81, 8 x EF 800, 4 x EF 804 S, 1 x PL 81, 1 x 85 A 2

We reserve the right to make any departures from this specification, especially those considered desirable for reasons of improved design.